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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,399	09/11/2003	Hiromitsu Takahashi	IPE-023	3761
20374	7590	08/19/2004	EXAMINER	
KUBOVCIK & KUBOVCIK SUITE 710 900 17TH STREET NW WASHINGTON, DC 20006			PRITCHETT, JOSHUA L	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/659,399

Applicant(s)

TAKAHASHI ET AL.

Examiner

Joshua L Pritchett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,5,7,11,13,15,17,19,21,23 and 25 is/are allowed.
- 6) ☒ Claim(s) 2,4,6,8,12,14,16,18,20,22,24 and 26 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This action is in response to Amendment filed June 14, 2004. Claims 1, 2 and 10 have been amended, claim 9 has been cancelled and claims 25 and 26 have been added as requested by the applicant.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 6, 8, 12, 14, 16, 18, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga in view of Yoshida (US 5,066,099).

Regarding claim 2, Suga discloses an optical functional sheet comprising light diffusing phases (16) and transparent phases (14) extending in a direction perpendicular to the surface of the sheet, wherein the light diffusing phase and the transparent phase are alternately arranged along the sheet surface direction (Fig. 1). Suga discloses at least within the sheet light diffusing phases and transparent phases each extending in a direction perpendicular to the surface of the sheet (Fig. 1). Suga lacks reference to the light-diffusing phase forming a continuous phase. Yoshida teaches the use of the light

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diffusing phase (5) arranged in a form of a continuous phase in which the light diffusing phases are mutually coupled in a direction along the sheet surface (Figs. 3 and 6). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga light diffusing phase form a continuous phase as taught by Yoshida for the purpose of having all the light diffused to widen the viewing angle of the functional sheet.

Regarding claim 4, Suga discloses the shape of the projected image of a transparent phase onto the sheet is tetragon (Fig. 1).

Regarding claim 6, Suga discloses wherein a light-diffusing phase is a transparent matrix component, in which fine particulate matter having a different refractive index from that of the matrix component is dispersed (Fig. 1; col. 4 lines 35-37).

Regarding claim 8, Suga discloses the invention as claimed and further teaches the use of air as a transmissive material for use in light diffusing functional sheets (col. 8 lines 11-12). Air is known to have a refractive index of 1, which is different than any transparent optical matrix. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use air to replace the dispersed phase in the light diffusing phases of Suga for the purpose of minimizing production costs by eliminating the need to purchase additional materials.

Regarding claim 12, Suga discloses wherein the shapes of the cross section of the light diffusing phases and the transparent phases in a direction normal to the sheet surface are rectangle (Fig. 1).

Regarding claim 14, Suga discloses wherein the ratio of the film length of the light-diffusing phase to the film thickness of the light-diffusing phase is not less than 1 (Fig. 12).

Regarding claim 16, Suga discloses wherein the area ratio of the light diffusing phases to the area of the transparent phases within the surface of the sheet is 1/50 to 1/1 (Fig. 1).

Regarding claim 18, Suga discloses wherein the film thickness is 10-500 microns (Fig. 12).

Regarding claim 20, Suga discloses another optical functional sheet (12).

Regarding claim 24, Suga discloses a light guiding plate (12; Fig. 8).

Claims 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga in view of Yoshida as applied to claim 2 above, and further in view of Kashima.

Suga discloses a light guiding plate (12; Fig. 8). Suga lacks reference to the use of a light diffusive sheet as the other functional sheet. Kashima teaches the use of multiple functional sheets with one being a functional sheet with transparent and light diffusing phases (Fig. 1) and also the use of a light diffusive sheet over the top of another functional sheet (Fig. 6). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga invention include the other light diffusing functional sheet as taught by Kashima for the purpose of having total diffusion of the light exiting the functional sheet to increase the viewing angle.

### ***Response to Arguments***

Applicant's arguments, see Amendment, filed June 14, 2004, with respect to claim 1 have been fully considered and are persuasive. The rejection of claim 1 has been withdrawn.

Applicant's arguments, see Amendment, filed June 14, 2004, with respect to the rejection(s) of claim(s) 2 under Suga in view of Nakai have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Suga in view of Yoshida.

***Allowable Subject Matter***

Claims 1, 3, 5, 7, 11, 13, 15, 17, 19, 21, 23, 25 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art of record fails to teach or suggest an optical functional sheet comprising transparent phases and light diffusing phases alternating along the surface in the sheet direction and the length of the transparent phase in a direction of film thickness divided by the length of the transparent phases in a direction along the sheet surface is a range from 2 to 10.

The remaining claims depend from claim 1 and are allowable for the same reasons.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest an optical functional sheet comprising transparent phases and light diffusing phases alternating along the surface in the sheet direction and the length of the transparent phase in a direction of film thickness divided by the length of the transparent phases in a direction along the sheet surface is a range from 2 to 10.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP *JP*

  
**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**